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INTRODUCTION OF WIRED TELEVISION

I. Shamshin

At present, the complexity of the receiver and its comparatively high cost prevent the creation of large television networks. Research conducted by the Central Scientific Research Communications Institute of the Ministry of Communications, as well as recent investigations by the Moscow Municipal Wired Radio Network (MGRS), indicated that receiver simplification and price reduction could be obtained through centralization of the most complex of the elements in intermediate centers, with further distribution of television signals and control voltages by wire. This will reduce the number of tubes in the receiver and will simplify receiver control.

Zhirnov, Babenko, and Karputkin, members of the MGRS laboratory, concluded the first stage of research work, and constructed actual models of equipment for a television center and television receivers. They found an original solution for this complex problem and obtained reasonably good reception of television broadcasts with simple and inexpensive equipment.

The television center built by the MGRS is only slightly more complex than the standard television receiver T-l (Moskvich and Leningrad) and is designed to operate four-tube television receivers by wire. The receivers of MGRS-system subscribers are extremely simple and have only three control knobs, volume, focus, and brightness.

Wire with a diameter of 0.5 mm and with polyvinyl-chloride insulation is used for the television network. With this diameter, each line going from the center can extend 300-350 m. With wire of greater diameter, the length of the line may be increased slightly. The laboratory rejected the idea of installing complete scanning units in each subscriber's set. Instead, these are concentrated in the television center and the control voltages are distributed centrally to the subscribers' sets. This simplifies the subscribers' receivers considerably. Because of the use of an original transmission circuit, two pairs of wires suffice to distribute all signals without appreciable interference.

The television center of the MGRS system consists of a receiver, a video amplifier, a line-synchronizing pulse unit, a field-scanning generator, and the sound unit (Figure 1).

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The field-scanning unit is made up of a multivibrator with a discharge tube, a phase inverter and a push-pull output stage. The line impulses are produced in a blocking oscialator, and are fed into the line after being amplified to 180 v.

The sound channel is designed for reception of programs over telephone wires, which are also used to control the center when used under city conditions. The rural center would be equipped with a special sound-accompaniment receiver.

The basic elements of the subscriber's receiver are the line-scanning generator and rectifier.

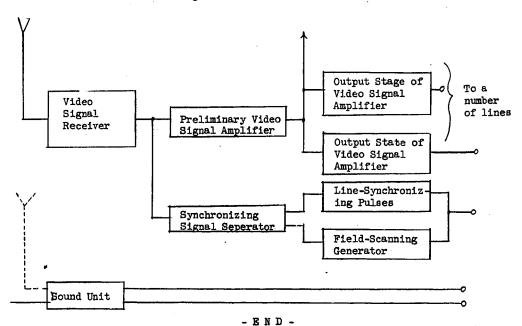
In the four-tube-type receiver, two of the tubes are rectifiers, one tube is used in the line-scanning stage, and the fourth tube is used as a line-scanning discharge tube and af amplifier.

This year, the laboratory plans to conduct experiments in the dissemination of television signals and the control voltages by means of different types of networks. A rural television center will be built for the study of the operating conditions of a wired television system. In equipping this center, underground wires with polyvinyl-chloride insulation will be used.

The laboratory also plans to investigate the problem of combining television with multiple-program radio broadcasting. Successful solution of this problem would enable the owner of a wired-television receiver to listen to any of several radio broadcast programs during interruptions of television-broadcast operations.

The commission of the Ministry of Communications which accepted the experimental television center acknowledged it as original and of outstanding value for further experiments in this field.

block Diagram of the Wired-Television Center



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